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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/700,617	03/22/2001	Magnus Johansson	S1022/8574	8085

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EXAMINER

CHANG, EDITH M

ART UNIT PAPER NUMBER

2637

DATE MAILED: 08/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/700,617	Applicant(s) JOHANSSON ET AL.	
	Examiner Edith M. Chang	Art Unit 2637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 July 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,6-24,28-43 and 46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,6-22,24 and 34-38 is/are rejected.
- 7) ☒ Claim(s) 23,28-33,39-43 and 46 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22010322,20050707 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, at least one transmitter and a plurality of receivers (claims 1, 21 & 23), and a transceiver of claim 22 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 1-2, 6-24, 28-43 and 46 are objected to because of the following informalities:

Claim 1, line 1: "an OFDM transmission system" is suggested changing to "an Orthogonal Frequency Division Multiplexing (OFDM) transmission system"; line 6: "ambiguity prevention means" is suggested changing to "an ambiguity prevention mechanism".

Claims 7-8 & 29-30, line 4: "an unwrapped equalizer parameter" should be "the unwrapped equalizer parameter"; line 5: "a frequency domain frame" is suggested changing to "a received frequency band".

Claim 8, line 5: "a received frequency band" should be "the received frequency band"; line 6: "equal parts and n_0 , and n_2 " is suggested changing to "equal parts, and n_0 and n_2 ", "the frequency" should be "the received frequency".

Claim 9, line 3: "equation (1b)" is suggested changing to "the equation (1b) of the average slope".

Claim 11, line 3: "a small fraction α_k " is suggested changing to "a small fraction of the average slope α_k ".

Claims 17 & 39, line 2: "DMT" is suggested changing to "Discrete Multi Tone (DMT)".

Claims 18 & 40, line 2: "ADSL" is suggested changing to "Asymmetric Digital Subscriber Line".

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Claims 19 & 41, line 2: "VDSL" is suggested changing to "Very high data rate Digital Subscriber Line".

Claim 21, line 2: "said receivers are receivers" is suggested changing to "each of the plurality of receivers is the receiver".

Claim 23, line 1: "an OFDM transmission system" is suggested changing to "an Orthogonal Frequency Division Multiplexing (OFDM) transmission system";

line 5: "comprising" is suggested changing to "comprising the steps of";

All occurrences of "adaptive channel equalizer means" should be "adaptive channel equalizer", "detector means" should be "detector", "sampling clock control means" should be "sampling clock controller" in the claim 23.

Claim 24, line 2: "equalizer means" should be "equalizer", "comprising" should be "the controlling step comprising the step of".

Claim 28, line 1: "comprising" should be "the step of preventing comprising the step of".

Claim 29, line 1: "comprising" should be "the step of deriving the slope comprising the step of".

Claim 30, line 1: "comprising" should be "the step of deriving the slope comprising the step of"; line 6: "the frequency" should be "the received frequency".

Claim 31, line 2: "comprising" should be "the step of calculating the average slope comprising"; line 3: "applying" should be "the step of applying".

Claim 32, line 1: "comprising" should be "the step of controlling comprising the step of".

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Claim 33, line 1: "comprising" should be "the step of rotating comprising"; line 3: "a small fraction a" is suggested changing to "a small fraction of the average slope α_k ".

Claims 34-36, line 1: "comprising adaptively" should be "further comprising the step of"; line 2; "EQ" should be "EQ adaptively".

Claims 37 & 38, line 1: "comprising" should be "the step of updating comprising".

Claims 43 & 46, line 1: "OFDM transmission system" is suggested changing to "Orthogonal Frequency Division Multiplexing (OFDM) transmission system".

Claims 2, 6, 10, 12-16, 20, 22 and 42 are dependent on the objected claims 1 and 23.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-2, 6-22, 24 and 34-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, the apparatus claim does not clearly indicate the invention subject matter that the receiver has/comprise elements, however there are no connections between the elements in the body of the claim. All the limitations after *wherein* phrases are not positive limitations.

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Rearrange or incorporate the limitations following the wherein phrases of the claim into the body of the claim so the claim has a body that clearly indicate the structure/relation of the elements comprised in the apparatus.

For example, A receiver, for use in an ODM transmission system, comprising:

An adaptive channel equalizer means receiving input data/vector X ... and providing an equalizer output vector U ;

A detector means receiving the output vector U ... and providing a quantized vector Y ;

An equalization parameter updating means responding to the quantized vector Y outputted from the detector means and the adaptive channel equalizer means to provide.....

Claim 11, the parameters n and N are not defined.

Claims 12 & 34, the parameters n , k , μ_1 , X and $L_{n,k}$ in the equation (3a) are not defined. The parameters should be defined, when they are recited in the claim and its corresponding independent claim first time.

Claims 13 & 35, the parameters n , k , μ_2 , X and $L_{n,k}$ in the equation (3b) are not defined.

Claims 14 & 36, the parameters n , k , μ_3 , X and $L_{n,k}$ in the equation (3c) are not defined.

Claim 2, 6-10, 15-22 and 37-38 are dependent on the rejected claims 1, 34 and 35.

Allowable Subject Matter

5. Claims 1-2, 6-22, 24 and 34-38 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

6. Claims 23, 28-33, 39-43 and 46 would be allowable if rewritten or amended to overcome the objection(s) set forth in this Office action.

7. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or suggest, alone or in a combination, among other things, at least a OFDM receiver and its method as a whole, the combination of elements and features, which includes a slope of an equalizer parameter argument function of element-by-element product of the vector of the equalized signal from the equalizer and the conjugate of the vector of the quantized signal from the decoder (quantizer) or an average slope derived from the unwrapped equalizer parameter argument function of the equalized signal from the equalizer to provide the synchronization.

Conclusion

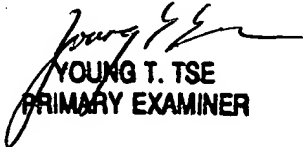
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edith M. Chang whose telephone number is 571-272-3041. The examiner can normally be reached on M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay K. Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Edith Chang
July 28, 2005


YOUNG T. TSE
PRIMARY EXAMINER